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Leading the teaching profession toward the best possible instructional programs for children and youth will be difficult because our concepts of teaching must change fundamentally. The intensity of the school must be enormously increased in light of other more potent factors determining what a child learns and becomes. In the current era human-to-human instruction is in full bloom; one job for the next 10 to 15 years is to implement the human-based innovations we have been talking about for the past 15 years. The era of man-machine interaction will replace the current era; the problem is not whether we like the idea but what we are going to do about it. We must identify the truly human tasks of the human teacher and the more routine, highly programed tasks which can be done better by the computer. A third, still embryonic era is the future one in which the school as we know it will be obsolete. It will be replaced by a diffused learning environment (homes with computer consoles, public parks and museums, and an array of guidance and programing centers) in which the formal process of instruction must involve all the most able members of our society. The means of humanizing 21st century education must seriously occupy our attention in the next decade, but we may also need to raise new questions about the ends. What kinds of human beings do we wish to produce? (JS)

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THE FUTURE OF LEARNING AND TEACHING

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THE FUTURE OF LEARNING AND TEACHING

DR. JOHN I. GOODLAD

October 20, 1967

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FOREWORD

THE FUTURE OF LEARNING AND TEACHING is the printed version of an address given by Dr. John I. Goodlad, dean, Graduate School of Education, University of California, Los Angeles, and director, Research Program, Institute for Development of Educational Activities (IDEA), at the inauguration ceremonies on October 20, 1967, of Dr. Sam Lambert as the sixth executive secretary of the National Education Association. On that day, a number of notable educators, statesmen, and laymen were asked to address themselves freely and candidly to the issues and priorities which they believed would affect the future course of the NEA. In the same spirit, Dr. Lambert asked his staff for similar help in the two-day meeting which followed his inauguration.

In publishing Dr. Goodlad's remarks as one of a series of occasional papers, the NEA Center for the Study of Instruction seeks to share with a wider audience the stimulation he provided the NEA staff. We believe his paper particularly appropriate for us to distribute because it relates most directly to our work. Also, since John Goodlad served as Chairman of the CSI Advisory Committee from its beginning until 1966, we have firsthand experience on how helpful his counsel can be.

With this publication, CSI joins the *NEA Journal* in bringing Dr. Goodlad's comments to the attention of the profession. Because of space limitations, the *Journal* confined itself to a short article based on his talk in its

February 1968 issue. Since we wished to retain as much of the flavor of the original as possible, this manuscript is presented in its entirety with minimum editing. What follows, then, is Dr. Goodlad himself speaking. We hope readers will find him as exciting as we in NEA did.

Ole Sand, Director
NEA Center for the Study of
Instruction

It is indeed an honor and a pleasure to be participating in these important activities surrounding the inauguration of Sam Lambert as executive secretary of the National Education Association. I salute Sam Lambert for the important responsibilities which have come to him. I join the others today in wishing him the best. I do not need to wish that he have lots of fun and excitement, because obviously there is no doubt about that.

The executive secretary of this Association assumes an enormous burden, of course, and I am one of those people who still believe that the individual human being in a leadership position is still exceedingly important. I must confess, while I recognize some of the reasons for the development of a leadership team, I believe that one man, even in a vast bureaucratic organization, can make a significant difference. For example, during the past seven and a half years I have watched on the vast campus of UCLA, where we now have nearly 29,000 students, how one man can mark that entire campus with his presence. I feel confident that Sam Lambert will mark this Association with his presence.

THE IMPORTANCE OF INDIVIDUAL CONCERN

But I am also deeply concerned about the quality of the membership and whether or not we shall have enough people who really care. Last year in New York at the annual meeting of the American Educational Research

Association, Mrs. Goodlad and I were waiting in the hotel for an elevator to go up and a young man was standing there, waiting for an elevator to go down. I looked at his little tag. I do not recall his name, but I shall call him Mr. Thomas. He was identified as an anthropologist from the University of Illinois. I said to him, "You know you are very fortunate. Your new chancellor is an amazingly able man, and we are terribly sorry to lose him as vice-chancellor of the University of California at Irvine. But our loss is your gain." And he said, "Oh, are we getting a new chancellor? I did not know that! That shows how unimportant it is anyway." And while I was searching for some apt reply to this young man, my wife, who is known for getting directly to issues and speaking her mind accordingly, said, "Mr. Thomas, that is a very comfortable position for one who has not been called to leadership." And with that, the elevator arrived, and we swept in.

Let me use another example. Some years ago when I was chairman of the Department of Education at Emory University in Atlanta, I was engaged in recruiting, as chairmen and deans are almost continuously engaged. I brought in a young man for a position in educational philosophy. It happened that the dean of our graduate school was a philosopher and, in fact, chairman of the philosophy department. I took the young man over to visit with Professor Loemker. It became evident very early in our conversation that our visitor was deeply concerned about academic freedom and whether or not the Emory University campus provided it.

Professor Loemker listened to him for some time. Then he said, "Young man, in these times I am less concerned about whether Emory University has academic freedom

than I am about whether we have young professors who need it."

And so, important as is the question of leadership, of equal importance is the question of whether or not there is at any given time in an association or a nation enough people who care.

The man who assumes the top leadership post of the National Education Association in these times shoulders, as we all know, enormous responsibilities. The NEA has chosen to represent teachers at the bargaining table, on one hand, and, on the other, to lead the teaching profession toward the best possible instructional programs for children and youth. Whether or not a happy balance between the two can indeed be maintained remains to be seen. Suffice to say, the leadership of the executive secretary may very well be the decisive factor in determining whether or not that balance will be maintained. I address myself to the instructional half of that dual responsibility.

THE CHANGING WORLD OF EDUCATION

One of the reasons that providing instructional leadership will be so difficult is that our concepts of schooling and of teaching must change fundamentally. Not just a little, with an innovation tacked on here and another there; that is not what we need in 1967 and definitely not what we will need in 1977. Just a few observations serve to give substance to my generalization. First, as the studies of James Coleman of Johns Hopkins, Alan Campbell of the Maxwell School at Syracuse, and others are now suggesting, what the school does in educating the young appears to be less potent or at best no more potent than other factors determining what the child learns and becomes. What the child brings to school from his home

and what he encounters there from other homes seem to add as much to learning as what the school itself puts in.

Second, the incidence of nonpromotion, dropouts, alienation, and minimal learning in school is such that one is led to conclude that today's schools are obsolescent. They were designed for a different culture, a different conception of learning and teaching, and a different clientele. We do not plan for and deal with our clientele nearly as well as the Cadillac agent plans for and deals with his.

Third, success in school, as measured by grades, appears to bear little relationship to anything else of importance—not to good citizenship, not to good work habits, not to happiness, not to compassion, not to any other significant value in the larger human sphere. Success in school predicts success in school, and grades predict grades—little else.

Fourth, a relatively new medium—television—has entered into the business of transmitting a major segment of our culture to the young. If the years before beginning school are taken into account, television occupies more hours than schooling during the 18 years from birth to completion of high school. There are very few signs that school and television are about to enter into a jointly planned enterprise for instruction of the young.

One could go on and on in this vein, but there really is little point. The central problem, it seems to me, is that the intensity of the school must be enormously increased. Each of us is convinced that education is a powerful force for the improvement of man and of mankind. But to assume that school, *as it now exists,* maintains the central thrust in changing human behavior is to be misled.

I do not know how successful we will be in increasing the intensity of the school. I do know, however, that

instruction will go on—in the home, in the peer group, through television, and through new institutions yet to be created. The failure to increase the intensity of the school may very well determine the nature, number, and variety of other institutions to be created. All this will certainly determine the future of the school itself.

My purpose now is to discuss learning and teaching that are to come. We live in a time when one era of instruction is in full bloom; another is well begun; and a third is embryonic. Let us take a look at all three.

The Current Era

The era that is in full bloom and about to fade is human-to-human instruction. The prime exhibit of this era is the human-based school. Here, we like to believe, children and youth are inducted into their culture; individual potentialities are identified and developed; individuals take on a sense of identity and ultimately transcend themselves; and those values that make for the ideal adult are inculcated in the young. For a large segment of our population, however, instruction in school merely increases the gap between the "haves" and the "have-nots."

Nonetheless, as we all will admit, we are in an inventive period, and old ways of doing things are tumbling before the drive to increase the intensity of the school. However, we have not yet eliminated track systems of grouping, with their self-fulfilling prophecies; nor have we broken down the grade barriers with their nefarious adjustment mechanism of nonpromotion; nor have we removed classroom walls to provide ultimate space flexibility in all of our new building designs. Some of the schools we are building in this nation look like the schools we were building 30 years ago. Nor have we learned to teach inductively, with the child learning for

himself the skills of inquiry. But we have caught the spirit of these things. Few of our schools are nongraded, team taught, or organized around basic curricular concepts, skills, and values. But the arguments against these advances are very few indeed. Today's teachers want to know how to bring them about, and to the leadership of the NEA I say we must remember this. Today's teachers *want* to bring them about! The three to five thousand visitors a year who come to our laboratory school at UCLA do not any longer protest the innovations. Their questions have changed from questions of resistance to questions of how to do it. But we have in the country precious few models to show our teachers.

The innovations in *human-based* instruction in our schools this past decade or so have been relatively few. And they will be even fewer during the next decade or so. There will not be a revolution in human-based instruction in the schools during the next 15 years; nor has there been one during the past 15 years, in spite of all the articles and books that bear the word *revolution* in their title. The challenge for the next decade is much less one of inventing than of implementing the several innovations of power and viability that have appeared during recent years. There will be an accelerating evolution in curriculum, school organization, and instructional practices, but *non*-human-based instruction will loom ever larger on the horizon.

The big push for the next 10 to 15 years, then, is implementing the things we have been talking about during the past 15 years. And these are things that call for improved *human*-based schools. Regrettably, the National Education Association was not at the forefront in the innovations about which I have been talking. But—and perhaps this is the role of a profession—it did much to

legitimatize these innovations through various departments of the Association. In 1963, through the NEA Project on Instruction, now grown into the Center for the Study of Instruction, the NEA legitimatized most of the innovations we have been talking about during the past decade.

It may well be that this is the proper role of the Association. But if it is, the Association must not delay in legitimatizing by allocating to committees endless study of the problems. It must bring together the very best minds and techniques available to appraise what is being proposed by the innovators and, on the basis of favorable appraisal, to promote and develop vigorously so that our schools never lag very far behind what our best insights suggest they might be.

The Era of Humans and Machines

Well, so much for the human-based era which is in full bloom. There are signs that it is fading and that the innovative thrust will be elsewhere in the next era. The era of instruction that will supersede the era of human-based instruction is that of man-machine interaction. We might not like that, but the signs are clear. The instructional era that is now on the horizon is one of man-machine interaction. The problem is not whether or not we like it, but what we are going to do about it. The machine is, of course, the computer. We have lived in the shadow of the computer long enough now, but used it so little in instructional affairs that we may be inclined to believe that its future and our own are going to be very far apart. Nothing could be farther from the truth. The computer will march relentlessly into our instructional lives. Whether or not it will come into the school building is another matter. There is no reason to believe that it will not. Patrick Suppes at Stanford tells us that the cost

of a computer console for each elementary school classroom is now about $2,000. He is referring to a terminal, like a television set—not the computer itself. If we should decide to put one in every classroom, competition undoubtedly would push the cost down to $1,000 almost immediately. At the first figure, $2,000, we could equip every elementary school classroom in the United States with a computer terminal at a cost of one billion dollars, and that is a lot of money. But over a ten-year period, it is one-five-hundredths of what we will spend on elementary education anyway. Now, please, don't misunderstand me. One of the problems in saying anything about education is that in describing or predicting anything it is automatically assumed that you are endorsing it. I have not said anything at this point about endorsement. I am talking about prediction only. There are problems involved, especially in hooking up the consoles to computer-instructional systems located at some remote point. But these can be solved with improved communications connections or by moving small computers about. Technomics, Incorporated, of Santa Monica has built a small computer-based instructional system which can be moved about and which is surprisingly versatile and inexpensive. Should development in computers be anything like development in television and air conditioning, the technical problems need not trouble us for long.

The Role of the Computer. Already computers are demonstrating their usefulness in teaching spelling, mathematics, reading, and a host of cognitive skills. Tapes, screens—television-type screens, that is—records, and other audiovisual devices coupled with the computer make possible a unique instructional system of sight, sound, and touch. I'm on the Board of Visitors for the Learning Research and Development Center at the University of Pitts-

burgh, where, from time to time, I have an opportunity to observe their advancements in computer-assisted instruction. I am intrigued by their approach to spelling. The computer speaks a word, and the child writes the word on a screen. If he makes a mistake, the computer produces the word on the screen and says, "Copy it." The youngster copies it. If he makes a mistake in copying, the computer gets angry with him!

Current writing on computer-assisted instruction presents a picture of great instructional efficiency and the freeing of human teachers to do those instructional things that are truly human. Read a book on computer-assisted instruction, and it will invariably end on the high note, "With the computer, human beings will do the truly human things." But what are the truly human instructional tasks? And have teachers been prepared to engage in them? I have my doubts.

The provision of programed sequences by way of a computer offers us efficient—note, *efficient*—means of communicating educational lore and should be welcomed for this reason. But we know precious little about the productive interaction of human beings for the achievement of mankind goals. The computer offers an intense learning environment, but it does not offer an intense human environment. I am inclined to believe that the lack of an intense human environment explains why the school today seems not to be a highly significant factor in educating those whose environments disadvantage them.

Now, if the organized teaching profession behaves with respect to computers as it has sometimes behaved with respect to other innovations, the profession will reject ". . . the great metallic beast, the genie we have raised to rule the earth." But what the teaching profession ultimately must do is to legitimatize the computer as instructor

in those basic learnings which can be carefully programed. Then the profession must explore the questions of how computers and people are to live together productively in the instructional situation. Why am I saying this? Because computers will indeed provide much instruction. The serious, critical question I am putting before you is whether the teaching profession will legitimatize the computer. For, if it does not, the profession will be bypassed, and there are ample signs to suggest the possibility of this.

By legitimatizing the computer as man's companion—perhaps even man's best friend—in a teaching program, it will be possible to work out who will do what and when in an environment influenced by the teaching profession. But if the computer is not legitimatized by the teaching profession, it will go its own way, as went television. The computer will go its own way to some extent in any case, but the important element is that it join the human teacher in a planned process of inducting the young into their culture.

Emphasizing the Human. An important focal point for the teaching profession now is the humanization of the means of instruction. We have reiterated truly human ends for education, but we have not done very well by the means. I think any one of the ringing statements of goals for American education of the past 40 or 50 years could serve as significant goals to guide us in the future. We have done less well by the means. Two opportunities lie before us. The first is the humanization of content; the second is the humanization of the entire instructional environment.

The average high school senior graduating this past June viewed in the course of his life 15,000 hours of television in addition to many hundreds of hours of public movies. These hours and many more, the time spent with

newspapers and magazines, exposed him to a formidable array of violence, cruelty, dishonesty, and inhumanity to man. Still in my mind, when I close my eyes, is that frightening picture, some months ago, of a very large American soldier and a very small Vietnamese soldier standing together in a river. The small Vietnamese is being beaten about the face. Superimposed on top of that picture in my mind is a more recent one of a very large American soldier standing with his foot on the neck of a very small Vietnamese soldier. Must war and violence always be with us?

I do not believe that the 12,000 hours a child spends in school provide anything like an antidote for what that child is exposed to in the rest of his waking hours. By comparison with the intensity of these many other stimuli 12,000 hours is low. Why is it that we are loathe to present the other side of the coin in the substance of schooling? Why must we consider someone who talks about more gentle things as sissified and unmanly? Could we not mount in the social studies and in the humanities a program designed to portray the best in men and in mankind? We have the tools and the creative minds—the same tools that are presenting the other side of the coin. Do we not care enough, or have we simply resigned ourselves to inevitable folly in man?

Similarly, then, in addition to content, we need to redesign every phase of the human relationship in learning in order to make the total impact more intensely human. We complain about students' relationships to one another and to adults in the schools and set up petty rules to be broken. Clearly, however, persistence in these attitudes and behaviors is indicative of an inadequate educative enterprise. And note when I say *educative* I am not talking just about the schools; I am talking

about the entire process of education—home, television, radio, newspapers, and all of the other media which provide far more hours of stimuli than do our schools.

In my 1966 General Session address to the Association for Supervision and Curriculum Development of the NEA, I spoke of a humanistic curriculum—one which I hoped would become a central concern at least by the last two decades of this century. Some thought I was too pessimistic and that what I called for might be attained much sooner. Perhaps it was with this in mind that the ASCD pushed the theme in its 1967 convention. I applaud the worthy effort and hope that it will be duplicated throughout all of the departments of the National Education Association. I wonder if all of these departments and their more than one million members, focusing upon the best side of man and mankind, could not provide the antidote we must have to the inhumanity which confronts us at every turn?

What I mean by a humanistic curriculum is an emphasis on mankind values in the substance of the curriculum and a concern for both the individual and mankind in the environment of teaching and learning. I believe these tasks to be so formidable and their import of such magnitude that I welcome the computer into the instructional process and charge it with teaching some of the basic skills and concepts which are only the beginning in educating the compassionate, rational man. I submit that the computer can and will do certain instructional tasks better than any human teacher can perform them. The research challenge is to catalog those aspects of instruction that are most appropriate for the machine, on one hand, and for the human teacher, on the other. We must not make the human teacher a supervisor or a coordinator of the computer, for if we do he will become its servant.

The teacher may very well contribute to programing, but the interface should be between student and machine. For us to take our traditional position with respect to this electronic teacher is to delay advance in the instructional process and, in the long run, to endanger even the highly relevant role of the human teacher.

And so, in summary the present era is one of implementing what man has already created. A second, on the horizon, is one in which we must learn to work out, side by side, with the computer the truly human tasks which belong to the human teacher and the more routine, but highly programed, tasks which can be done—and done better—by the machine.

A Look Into the Future

A third era—only dimly visible at this point—is much hazier in its outlines, and we can only speculate as to its characteristics. The computer is going to accelerate the coming of this third era. Were we to decide to put a computer console in every elementary school classroom during the next 10 years, as I discussed earlier, the cost would be cut in half very soon, and perhaps once more in half before the end of that decade. But suppose we were to accelerate the production of software material for the computer so that it could be used profitably in the home. Clearly, once we began to place computer terminals in every home, computer console costs would diminish to the point where computer communication would be as accessible to the average family as television is today. This, my friends, will happen. Think just a little of the power inherent in this eventuality.

Now, let me approach that problem—the eventuality of a computer console in every home—from the vantage point of the school. As I have indicated, most of our schools

are rapidly becoming anachronisms and will do so at a more rapid rate unless we pay attention to the possibilities of these emerging eras. If we rethink our school buildings well in advance of laying a cornerstone, we may never lay that cornerstone. Let me illustrate.

More than a year ago, a superintendent of schools—a very creative one—came down to have lunch with me. He said—and he was very excited about this—"I want to build a laboratory school. I do not think laboratory schools like yours in a university have the impact of one I could create in a public school system. I would like you to help me create this laboratory school." I was very interested. As he talked, I began to share his enthusiasm and to ask some necessary questions: "When will the school open?" It was to be in September, slightly more than a year hence. Had anything been done about employing teachers? Oh yes, a principal had been employed, and he was already recruiting teachers. How many teachers were to be recruited? "About 20—roughly. We have a ratio of 28 pupils per teacher; this will require about 20 teachers." And I said, "Why 20? Why not 5, or 7, or 10?" It was obvious that my visitor was now irritated; his face began to flush, but I pushed on and asked, "Now, how large is your school to be?" "Well," he said, "I have 600 youngsters—I must have a school for 600 children."

Then I asked, "Well, why aren't you designing a building half the size of the one you are planning?" Now he was very irritated. "I have 600 children to take care of." I said, "I know that. But California has a delightful climate, especially where you live, near the seacoast. Supposing you were to design a building for half the number of children and use all the money saved on amortization and so on to enrich the school program in a variety of ways. You need have only half your children in the building at

any one time." He was sure I was playing a sadistic game. I wasn't; I was making a point, and the point is that we effect most of our major decisions about education automatically, before we start thinking about change. We assume that there should be "X" number of qualified teachers for "Y" number of children, and we assume that we should construct a school building large enough for all of the children to be housed at once. But there is no reason why we could not employ half the usual quota of fully qualified teachers, using the balance of our money for part-time specialists and a host of instructional aids. And there is no reason why we could not plan an educational program that required only half a school building, with the rest of the money going for trips, special projects, and individualized activities of many kinds.

Rethinking Our Decisions. The point I am trying to make is that men have the opportunity to remake *all* previous decisions. Every single decision governing a school was made at one time or another by a man or by men. At the time the decisions were made, less data were available than are available today. The men who made these decisions were no brighter than we are, and they were less well educated. Therefore, it behooves us to examine every decision about schooling before we make it —decisions on size of buildings, and whether or not we want one at all; number of teachers, and whether we need a certified teacher for every 28 and a half youngsters; whether there will be a library that houses real books, or one which is a computerized box.

I had lunch with the president of Technomics, Incorporated, the other day. They are developing a box which makes available 30,000 basic volumes which would cost $7 apiece, on the average, if a library bought

them in conventional form. The new device will provide this library to schools, colleges, and universities at a cost of $1.50 a volume. The library will be made up of microfiche cards on which will be stamped 2,000 to 2,500 pages of a normal book—seven volumes to one little card about the size of a desk memorandum note. These in turn will be recorded on magnetic tape. With an efficient mechanical reader, the individual will have access to any of the 30,000 volumes. The State University of New York is very interested in this new concept of the library, as is the University of California.

A school is not necessary to learning and instruction. We *do not* need a school to guide children and youth in seeking to grasp their culture. And certainly we do not need a school to teach the fundamentals of reading, writing, and arithmetic, perhaps the least difficult part of our ultimate literacy. We *do* need formal processes of instruction, with the most able members of our society giving their time to planning and programing instructional materials, computerizing various programs for learning, and, most of all, interacting with other human beings in the delightful process of learning from one another. I predict that in the third era the only salvation for education will be that almost everyone will become a teacher. The demand for knowledge will be so great that each of us will be teaching somebody else. The variety of demands will require this variety of teachers.

The computer which we must legitimatize for learning and teaching in an imminent era probably will contribute significantly in a still later era to the demise of what we now call school. Now isn't that ironic? We have to legitimatize the computer or it will bypass us. If we legitimatize it and bring it into the school, it will in due time do away with the school. We shall regard this as a bad thing only

if we lack faith in the ability of man to fashion a world better than the one in which we now live.

In viewing learning and teaching for the year 2000 and beyond, it is easier to predict what will not be than what will be. A prescribed age for beginning formal education would be meaningless. The computer console with an array of stimuli and feedback devices will be as natural for the two-year-old in the year 2000-plus as a television set is for today's two-year-old. Teaching and learning will not be marked by a standard day of from nine to three, nor a standard year from September to June, nor a year for a grade of carefully packaged material. Age will be meaningless as a criterion for what one is to learn. Will learning be any less because there are no periods, no Carnegie units—thank God—no ringing of bells, no jostling of pupils from class to class? And what will the school principal and his administrative associates do when it is no longer necessary to schedule teachers so as to produce a balanced diet of subjects? Perhaps we will start doing some really important things.

It must be remembered that the touch of the child's fingers and the variability and comprehensiveness of programed learning sequences, not the availability of human teachers, will control a basic part of the curriculum. Clearly, the role of human teachers will change markedly. Human teachers will not disappear; they will become more important in a changed role. Hundreds of hours of their time will go into what will occupy each student for only an hour or two. But because thousands, or even millions, of students at some time in their life will profit by this hour, preparation time will be well spent, and quality will be vastly improved.

School, as we now know it—whether egg crate or flexible space—will have been replaced by a diffused learning

environment involving homes, parks, public buildings, museums, and an array of guidance and programing centers. It is quite conceivable that each community will have a learning center and that homes will contain electronic consoles connected to this central generating unit. This learning center will provide not only a computer-controlled video tape, microfiche, and record library, but also access to state and national educational television networks. It is even possible that advanced technology will return the family to center stage as the basic learning unit. I do not see this as destroying the family in any way. In fact, if the traffic situation gets any worse, it will be nice to stay at home for one's education, rather than to go to school.

The Crucial Issue of Means and Ends. The most controversial issues of the twenty-first century will pertain to the ends and means of modifying human behavior and, most of all, to who shall determine these ends and means. The first educational question will not be what knowledge is of most worth, but what kinds of human beings we wish to produce. The possibilities virtually defy our imagination. The nerve cells of the brain, far more than muscles or organs, are highly sensitive to small electric currents, to a variety of chemicals, and to changes in blood supply and its accompanying nourishment. Sedatives, barbiturates, tranquilizers, and various psychedelics (LSD—Heaven help me, I am not recommending these!) do provide powerful ways of controlling behavior by direct action on the brain. Human beings are experimenting with them every day and every minute of our lives. Similarly, behavior can be manipulated by applying electrical currents to regions of the brain. Experiments are now underway with drugs and brain extracts designed to enhance learning or memory. Aldous Huxley long ago introduced us to the possibilities of genetic selectivity

through the availability of sperm and ovum banks. We may not like it, but it's here—the means of drastically altering the course of human development through artificial insemination, chemical treatment, and electronic manipulation. We are already using some of these means with children we choose to call highly deviant. What, pray, is *deviant?* Are you and I, too, deviant? We are tampering with human evolution; the possibilities for further doing so will be enormously enhanced and refined as we move into the twenty-first century.

To what ends are these possibilities for intervening in human evolution to be directed? Notice that I've been saying that the *means* of humanizing the program must seriously occupy our attention during the next decade or so; but we must be conscious of the fact that we may need to raise new questions about *ends*.

IN CONCLUSION

I conclude on what may well be a controversial note—if I have not been controversial already. In my judgment, the future health, strength, and significance of the NEA depends heavily on the extent to which this Association succeeds in emphasizing the "E" in NEA. I hope one message has come through in what I have said: Education and instruction are much bigger than schools. Schools are only a convenient means to more important ends—means that may no longer be relevant several decades from now. Is the NEA to concern itself with the whole of education? Or only that part of it we have compartmentalized into a school? As a profession, we have tended to bog down in the narrow details of our calling—details pertaining primarily to the smaller means: buildings, classrooms, textbooks, and all of these together. As a consequence, we have

failed to provide the leadership necessary to raising the minds of our people beyond these trivialities.

As individual leaders, we must assert by our competence our ability to manage the means. Our constituencies lose faith in our competence when we hesitate, falter, and in desperation turn to the community for guidance in technique. The intrusion of state legislatures into instructional decision-making processes must be attributed at least in some degree to our failure to grasp the individual opportunity for leadership.

The charge to the organized profession is a much larger one. We must raise the level of the dialogue to truly significant questions of educational ends, and we must be as diligent as our lay citizens in exposing instructional deficiencies in the pursuit of these ends.

As to ends, let me put them before you in the form of questions about the educational enterprise:

To what extent are our young people coming into critical possession of their culture?

To what extent is each individual being provided with opportunities to develop his unique potentialities to the maximum?

To what extent is each individual developing a deep sense of personal worth—the sense of selfhood that is prerequisite to self-transcendence?

To what extent are our people developing mankind values—values that transcend all men in all times and in all places?

The fifth question is far more important, challenging, and frightening, now that the means of achieving the ends we choose are within our grasp. As citizen and educator I cherish the right to participate in the dialogue about it. That question is, "What kinds of human beings do we wish to produce?"